

What is claimed is:

1. An image forming apparatus, comprising:  
an image reading unit which reads image information and surface quality from a subject copy and supplies image data and surface quality data;  
an image processing unit which has  
recorded image preparing means for preparing image data for recording by subjecting the image data to prescribed image processing and  
surface quality determining means for determining the surface quality of the subject copy from the surface quality data and preparing surface quality determination data; and  
an image output unit which has  
image forming means for performing image formation processing on a recording material on the basis of the image data for recording and  
surface treatment means for performing surface treatment on a sheet on the basis of the surface quality determination data.

2. An image forming apparatus according to Claim 1, wherein the image reading unit has one of a CCD sensor and a CMOS sensor capable of reading image information and surface quality from the subject copy.

3. An image forming apparatus according to Claim 1, wherein the image reading unit has:

image reading means which reads image information on the subject copy and supplies image data, and

surface quality reading means which reads the surface quality of the subject copy and supplies surface quality data.

4. An image forming apparatus according to Claim 3, wherein the surface quality reading means has a surface quality detecting sensor which detects the surface quality of the subject copy.

5. An image forming apparatus according to Claim 4, further comprising a light source, wherein the surface quality detecting sensor causes the light source to irradiate the subject copy with light, measures luminous energy of mirror reflection (regular reflection) and luminous energy of diffusion from the subject copy, and detects the ratio between the luminous energy of the regular reflection and the luminous energy of diffusion (regular reflection luminous energy/diffused luminous energy).

6. An image forming apparatus according to Claim 5, wherein the light source for the surface quality detecting sensor emits infrared (IR) rays.

7. An image forming apparatus according to Claim 4, further comprising a light source, wherein the light source irradiates an embossed subject copy in an oblique direction with a luminous flux, the surface quality reading means reads shades due to the embossment of the embossed subject copy, and the surface quality reading means thereby detects the surface quality of the subject copy.

8. An image forming apparatus according to Claim 1, the surface quality determining part having a level of surface quality determination, wherein the surface quality determining means determines the surface quality of the subject copy by evaluating the surface quality data against the level of surface quality determination.

9. An image forming apparatus according to Claim 1, the surface quality determining part having a surface quality pattern database, wherein the surface quality determining means determines the surface quality of the subject copy by referring the surface quality data to the surface quality pattern database.

10. An image forming apparatus according to Claim 1, the surface treatment means comprising:  
a sheet heating means having a contact member, wherein the

sheet heating part heats the sheet while a surface of the sheet is in contact with the contact member; and

sheet cooling means for cooling the sheet being kept in contact with the contact member.

11. An image forming apparatus according to Claim 10, the contact member having a predetermined surface quality, and the image forming apparatus further comprising surface quality control means for controlling, on the basis of the surface quality determination data, at least one of:

a treatment condition of at least one of the sheet heating means and the sheet cooling means ; and  
the surface quality of the contact member.

12. An image forming apparatus according to Claim 11, wherein the treatment condition is at least one selected from:

heating temperature of the sheet heating part,  
pressure of the sheet heating part,  
heating duration of the sheet heating part,  
duration of pressure application of the sheet heating means,  
cooling temperature of the sheet cooling part, and  
cooling duration of the sheet cooling means.

13. An image forming apparatus according to Claim 11, wherein the surface quality of the contact member is selected from

gloss, matte and embossment.

14. An image forming apparatus according to Claim 10, wherein the surface treatment means further comprises a gloss control means for controlling the surface gloss of the sheet so that the surface gloss is one of higher than, lower than, and the same as the surface gloss of the subject copy.

15. An image forming apparatus according to Claim 10, wherein the surface treatment means further comprises surface quality partial control means capable of forming, on a portion of the surface of the sheet, a surface quality different from a surface quality of another portion of the surface of the sheet.

16. An image forming apparatus according to Claim 10, wherein the contact member is an endless belt.

17. An image forming apparatus according to Claim 16, wherein the sheet heating means comprises the endless belt and a pair of heating rollers so arranged as to press the endless belt from inside and outside of the endless belt.

18. An image forming apparatus according to Claim 10, wherein the sheet comprises a thermoplastic resin layer containing a thermoplastic resin and the sheet heating means heats the sheet to a

temperature equal to or above the softening point of the thermoplastic resin in the thermoplastic resin layer.

19. An image forming apparatus according to Claim 10, wherein the sheet comprises a thermoplastic resin layer containing a thermoplastic resin and the sheet cooling means cools the sheet to a temperature below the softening point of the thermoplastic resin in the thermoplastic resin layer.

20. An image forming apparatus according to Claim 10, wherein the sheet comprises:

- a supporting base;
- a thermoplastic resin layer; and
- an image forming layer, wherein the thermoplastic resin layer and the image forming layer are formed on the supporting base in this order, and the surface quality of the contact member is transferred to a surface of the image forming layer and an interface of the thermoplastic resin layer and the image forming layer.

21. An image forming apparatus according to Claim 15, wherein the contact member has a different quality at least in a portion thereof.

22. An image forming apparatus according to Claim 21, wherein the quality is at least one of surface quality or thermal

conductivity.

23. An image forming apparatus according to Claim 15, wherein the sheet heating means comprises a thermal head.

24. An image forming apparatus according to Claim 1, wherein the sheet is selected from a thermosensitive recording sheet, inkjet sheet, electrophotographic sheet, heat developing sheet, silver halide photographic sheet and silver halide digital photographic sheet.